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# **Survey Analysis and Reporting for the 1996 Health Care Survey of DoD Beneficiaries**

## **Health Status Working Paper**

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# **SURVEY ANALYSIS AND REPORTING FOR THE 1996 HEALTH CARE SURVEY OF DOD BENEFICIARIES**

## **EXECUTIVE SUMMARY**

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### ***Objective***

This research was conducted to identify how Department of Defense (DoD) health care beneficiaries view their own health status. Beneficiaries were asked 13 questions about their health. Twelve of these questions form the Health Institute's SF-12 health status questionnaire. Differences in health status were identified by region, catchment areas, noncatchment areas, gender, beneficiary type, and regular source of care.

### ***Procedure***

In the spring and summer of 1996, the 1996 Health Care Survey of DoD Beneficiaries was mailed to a stratified sample of 156,838 active duty personnel, retirees, survivors and their adult family members. The questionnaire contained items concerned with the beneficiaries' health status.

### ***Findings***

- Beneficiaries report that their health status now is about the same as it was a year ago.
- Beneficiaries living overseas have higher SF-12 PCS scores than those living in U.S. catchment and U.S. noncatchment areas.
- Retirees of any age report the lowest SF-12 PCS values of the four beneficiary groups while they report the highest the SF-12 MCS values.
- No clear pattern appears evident within the four beneficiary types as to health status scale score differences according to the beneficiaries regular source of medical care - military regular source of care or civilian regular source of care or none/don't know.

# **SURVEY ANALYSIS AND REPORTING FOR THE 1996 HEALTH CARE SURVEY OF DOD BENEFICIARIES**

## **HEALTH STATUS WORKING PAPER : FINAL COPY**

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# **SURVEY ANALYSIS AND REPORTING FOR THE 1996 HEALTH CARE SURVEY OF DOD BENEFICIARIES**

## ***Introduction***

This report provides a detailed look at the self-reported health status of military health care beneficiaries. The information in this report comes from the 1996 Health Care Survey of DoD Beneficiaries. The 89,701 respondents represent the views of the approximately 6.5 million adult beneficiaries of the Military Health Services System (MHSS). The report summarizes responses to questions about self-reported health status and provides detailed analysis by geographic location, beneficiary type, gender, and source of care for use in evaluation of health care delivery for military beneficiaries.

## ***Report Organization***

The report begins with a short overview of the questionnaire and the sample of beneficiaries for the 1996 survey. Next, the report describes the analysis of the data. Tables in this report present findings by beneficiary location, gender, beneficiary type (active duty personnel; active duty family members; retirees, survivors and their family members under age 65; and retirees, survivors and their family members age 65 or over), and source of care.

## ***The 1996 Questionnaire***

The 1996 Health Care Survey of DoD Beneficiaries provides detailed information on health care delivery from the point of view of the beneficiary. This section briefly describes the questionnaire. The survey has nine major sections, including:

- "Your Health and Daily Activities"—This section contains the 12 questions that comprise the Health Institute's SF-12 Health Survey<sup>1</sup>, a widely used and validated instrument that measures distinct aspects of personal health.
- "Preventive Health Care and Health Habits"—This section asks beneficiaries 17 questions about personal health habits and whether an individual received specified preventive exams.
- "Place of Medical Care and Health Insurance Coverage"—This section contains 10 questions about the beneficiaries' usual source of care and the type of health insurance coverage and who pays the premiums for private health insurance.
- "Medical Care at Military Facilities"—This section asks beneficiaries 12 questions about past use of military medical care, nights in a military hospital, ease of access to the military health care system ("process measures"), overall satisfaction with military health care, and reasons for not using military medical facilities, along with 32 questions rating specific aspects of military health care.

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<sup>1</sup>The 1996 questionnaire includes the SF-12 Health Survey, item numbers 1 to 8, reproduced with permission of the Medical Outcomes Trust, copyright© 1994 The Health Institute; New England Medical Center.

- "Medical Care at Civilian Facilities"—This section asks beneficiaries 12 questions about past use of civilian medical care, nights in a civilian hospital, ease of access to the civilian health care system ("process measures"), overall satisfaction with civilian health care and satisfaction with CHAMPUS (TRICARE Standard) benefits, along with 32 questions rating specific aspects of civilian health care.
- "Dental Care"—Beneficiaries are asked three questions regarding their use of dentists or dental clinics in this section of the questionnaire.
- "TRICARE"—This section contains 18 questions that look at beneficiaries' level and source of knowledge about TRICARE, their opinions about TRICARE and their current and future TRICARE enrollment plans.
- "Facts About You"—This section asks for demographic information, such as length of time in residence, source of eligibility for military health care, marital status, education, ethnicity and race, and age as well as other factors contributing to an explanation of health-related behaviors and opinions.

### ***Sampling and Response Rates***

The sample of beneficiaries for the 1996 survey were selected at random in catchment areas in the United States and overseas and in noncatchment areas. For noncatchment areas, beneficiaries were sampled separately within each of 12 regions, Alaska and overseas. To be eligible for the survey, an individual's record in the Defense Enrollment Eligibility Reporting System (DEERS) had to indicate that the individual was:

- Eligible for military health care benefits as of October 28, 1995; and
- Age 18 or older.

Within each catchment area, the sample was stratified by six beneficiary groups: (1) active duty personnel; (2) active duty family members; (3) retirees under age 65; (4) family members under age 65 of retirees; (5) retirees age 65 and older; and (6) family members age 65 and older of retirees. Stratification means dividing the survey population into mutually exclusive subsets (strata) and then sampling individuals independently from each stratum. Stratification serves two main purposes:

- Stratification ensures that the sample is large enough at the catchment area level and within each beneficiary group to identify with specified precision differences in answers between catchment areas and beneficiary types.
- Stratification also permits a more nearly optimum allocation of sample within catchment areas, within beneficiary groups, and within the catchment areas of a region as a whole.

The number of beneficiaries sampled in each catchment area and beneficiary group depends on how confident we want to be that our findings reflect the true values and not chance.

Meeting the precision requirements for this survey required approximately 90 to 100 respondents from each catchment area and beneficiary group combination. A response rate of 50 percent for active duty personnel and a 65 percent response rate for retirees and their families was assumed. The number of respondents required and the expected response rates determined the number of beneficiaries drawn from the sample. Table I and Table II show, for each segment of the population, the number of survey respondents (beneficiaries who returned their surveys) and the population (weighted N) of beneficiaries represented by the returned surveys and the response rate.



Table I

*Number of survey respondents and weighted N's for population segments*

<b>Population Segment</b>	<b>Survey Respondents</b>	<b>Weighted N</b>	<b>Response Rate</b>
All Beneficiaries	89,701	3,701,051	58.1
Males	44,357	1,973,787	57.9
Females	45,344	1,727,264	58.3
Active Duty Personnel	17,154	714,233	45.0
Active Duty Family Members	14,096	465,586	45.9
Retirees, Survivors and Their Family Members Under Age 65	31,785	1,638,294	62.3
Retirees, Survivors and Their Family Members Age 65 or Over	26,666	822,938	76.3
Beneficiaries in U.S. Catchment Areas	63,459	2,204,963	59.7
Beneficiaries in U.S. Noncatchment Areas	14,186	1,234,854	62.0
Beneficiaries in overseas Catchment Areas	11,499	196,069	48.3
Region 1: Northeast	9,428	787,602	62.0
Region 2: Mid-Atlantic	5,673	632,777	58.3
Region 3: Southeast	8,660	757,861	58.3
Region 4: Gulf South	7,503	433,308	60.8
Region 5: Heartland	3,884	468,373	59.4
Region 6: Southwest	10,128	727,040	58.1
Region 7: Desert States	5,896	300,288	62.4
Region 8: North Central	10,255	511,640	61.7
Region 9: Southern California	5,391	509,687	56.3
Region 10: Golden Gate	4,453	261,489	60.4
Region 11: Northwest	3,316	272,692	62.9
Region 12: Hawaii Pacific	1,286	104,399	62.4
Alaska	1,722	50,207	57.5

Table II

*Number of survey respondents and weighted N's for each beneficiary group within each region*

Health Care  Region	Active Duty Personnel		Active Duty Family Members		Retirees, Survivors and Their Family Members Under Age 65		Retirees, Survivors and Their Family Members Age 65 or Over		Total	
	Survey Respondents	Weighted N	Survey Respondents	Weighted N	Survey Respondents	Weighted N	Survey Respondents	Weighted N	Survey Respondents	Weighted N
Region 1	1,424	176,327	1,417	113,992	3,476	328,675	3,111	168,608	9,428	787,602
Region 2	817	225,670	835	134,725	2,114	203,941	1,907	68,412	5,673	632,777
Region 3	1,285	151,104	1,285	101,956	3,166	337,608	2,924	167,193	8,660	757,861
Region 4	1,062	82,184	1,148	58,904	2,794	208,552	2,499	83,668	7,503	433,308
Region 5	594	103,230	602	60,241	1,398	219,781	1,290	85,120	3,884	468,373
Region 6	1,595	161,148	1,489	100,252	3,736	325,671	3,308	139,969	10,128	727,040
Region 7	941	60,658	878	40,568	2,130	134,213	1,947	64,849	5,896	300,288
Region 8	1,766	124,231	1,636	79,289	3,704	222,279	3,149	85,842	10,255	511,640
Region 9	874	162,367	794	90,222	1,924	161,280	1,799	95,818	5,391	509,687
Region 10	707	46,491	669	33,820	1,574	109,433	1,503	71,744	4,453	261,489
Region 11	451	55,818	501	42,180	1,239	118,980	1,125	55,715	3,316	272,692
Region 12	234	47,371	159	27,163	478	20,608	415	9,258	1,286	104,399
Alaska	380	20,565	320	13,136	617	14,329	455	2,177	1,772	50,207

### ***Analysis of Health Status***

#### ***Objective***

The main objective of this analysis is to document any differences in the health status of the MHSS population across regions, beneficiary type or geographic location. Section I of the *1996 Health Care Survey of DoD Beneficiaries* contains a health status assessment of the respondents: the *SF-12*, developed by the Health Institute and used with permission. Health status assessment is an important part of the survey because any observed differences in health status may affect other health-related outcomes, including use of care and satisfaction.

The questions in the SF-12 can be used to construct two summary measures or eight health status subscales. The mental and physical summary scales are more reliable than the eight subscales because each summary measure is constructed from all 12 items. In contrast, four of the eight subscales are based on a single item (see Table III). The eight-scale profile is included for two reasons:

- To facilitate comparisons with the 1994-1995 survey results. However, since four of the scales are based on a single item, they are less reliable than the multi-item scales used in 1994-95;
- To help identify underlying causes of differences in the summary measure. Two catchment areas may have identical low physical scores but for very different reasons. One may have a below average physical functioning while the other reflects above average pain in the population.

*Table III*  
*Health status concepts*

<b>Health Status Concept</b>	<b>Number of Items</b>	<b>Question Number</b>	<b>Variable Names</b>
Physical Functioning	2	3a, 3b	SF12PF
Role-Physical	2	4a, 4b	SF12RP
Bodily Pain	1	7	SF12BP
General Health	1	1	SF12GH
Vitality	1	8b	SF12VT
Social Functioning	1	6	SF12SF
Role-Emotional	2	5a, 5b	SF12RE
Mental Health	2	8a, 8c	SF12MH
Health Compared to Previous Year	1	2	SF12CHG
Physical Health Summary Score	8		SF12PCS
Mental Health Summary Score	8		SF12MCS

The two summary measures developed by the Health Institute are computed using the formulae included in the *SF-12* scoring manual (Ware, Kosinski and Keller, 1995). The two health status summary measures will be the focus of the analysis. The eight health status concepts are derived from the survey using a scoring process similar to that developed by RAND for the *SF-36* (a previous, longer version, of the *SF-12*).

Each variable is given a numerical code when the surveys are electronically scanned. This numerical code is then recoded to a scoring system for each response. The coding and recoding for each concept is presented in detail in the Technical Manual (Brundage, Chu and Davis, 1997). After recoding the survey variables in the questionnaire, the eight health status concepts are derived as follows. Scale scores are the arithmetic average of items in the scale. If one of the two-item concepts is missing, the score is computed from only the existing item in the concept. If all items are missing from a concept, the concept is not calculated for that individual; all other concepts are computed. Early data analysis of the survey database will allow examination of the frequency distribution of available scores for beneficiaries.

### ***Research Questions***

This working paper addresses the following research questions:

- Are there health care regions that show significantly different health status summary scores from the overall DoD scores?
- How do males and females and those who make up the four beneficiary types differ with respect to their health status summary scores?
- Within the four beneficiary types, are there health status summary score differences depending on the regular source of medical care (military treatment facility, civilian provider, or none)?
- Within each region, are there health status scale score differences among the four beneficiary types?

### ***Analytic Variables***

To answer these research questions, several analytic variables were constructed to represent geographic location (XLEVELWP); gender (XSEXA); beneficiary type (XBGC\_S) and regular source of care (XREGSRCE). These variables are briefly described here. The Technical Manual contains detailed information about the construction of these variables.

#### ***Regular Source of Care (XREGSRCE)***

The constructed variable "regular source of care" is based on questions 27 and 28, which ask where beneficiaries usually seek care when they are sick or need advice. This variable has three categories (There will be a few who are unassigned.):

- 1---Military;
- 2---Civilian;
- 3---None/don't know.

### ***Other Constructed Variables***

The other constructed variables are used to identify individuals living inside U.S. catchment areas and display findings for this group by gender, beneficiary category, region, and source of care. Why were beneficiaries living inside U.S. catchment areas chosen for more detailed analysis? These individuals are of special interest for three reasons. First, they form the largest population group, accounting for approximately 75 percent of adult beneficiaries. Second, beneficiaries in this group typically have access to both military and civilian sources of health care. In contrast, beneficiaries living outside catchment areas do not have easy access to military care and beneficiaries living overseas do not have easy access to civilian care. Because beneficiaries living inside U.S. catchment areas typically have more choice for health care delivery, their views are of particular interest to us. Finally, the MHSS has more tools for managing the care of this population. For example, beneficiaries living inside U.S. catchment areas must obtain a nonavailability statement before seeking civilian care if CHAMPUS is the primary insurer.

Four variables were used to identify beneficiaries living inside U.S. catchment areas and to group them by region, gender, and beneficiary category:

- The variable XLEVELWP groups individuals into three categories: (1) beneficiaries living in U.S. catchment areas; (2) beneficiaries living outside of U.S. catchment areas; and (3) beneficiaries living overseas. Catchment area codes provided by Office of the Assistant Secretary of Defense Health Affairs (OASD(HA)) using the Defense Medical Information System (DMIS) were used to classify beneficiaries into these categories.
- The variable XREGION further groups individuals into specific regions. Catchment area codes provided by OASD(HA) were used to identify the appropriate region for each beneficiary.
- The variables XSEX (male/female) and XBGC\_S (beneficiary type) were also used to organize the data in the tables.

#### ***50-State Catchment Areas, 50-State Noncatchment Areas, Overseas (XLEVELWP)***

These groups of beneficiaries were formed to ensure that beneficiaries living in catchment areas of the 50 states are selected for analysis. Here, catchment area codes provided by OASD(HA) using the Defense Medical Information System are used to classify beneficiaries. The key variable here is CACSMPL, a four digit number representing the catchment area status of each beneficiary when the DEERS file was frozen and the sample drawn. XLEVELWP takes on values as follows (There will be a few who are unassigned.):

- 1---50-state catchment areas;
- 2---50-state noncatchment areas;
- 3---Overseas.

Only beneficiaries with a known value for this constructed variable were included in the denominators of tables.

### ***50-State and Overseas Regions (XREGION)***

These groups of beneficiaries will be formed to do analyses on beneficiaries living in the 50-state catchment areas for all working papers. In region-based research reports, beneficiaries in noncatchment areas will also be included in regional totals. Catchment area codes (CACSMPL) provided by OASD(HA) will be used to classify beneficiaries as located in a specific region as follows (There will be a few who are unassigned.):

- 1---Northeast;
- 2---Mid-Atlantic;
- 3---Southeast;
- 4---Gulfsouth;
- 5---Heartland;
- 6---Southwest;
- 7---Desert States;
- 8---North Central;
- 9---Southern California;
- 10---Golden Gate;
- 11---Northwest;
- 12---Hawaii Pacific;
- 13---Alaska;
- 14---Overseas.

This constructed variable will allow the identification of the beneficiaries in a 50-state region or those who are overseas selected for a regional report. Only these fourteen values of this constructed variable will be used in analyses.

### ***Organization of Tables***

For reporting purposes, information from the survey has been organized into a set of standardized tables separated by flow charts. The flow charts depict how the analytic groups were formed from subsets of the whole sample and indicate the unweighted sample size for these analytic groups. The flow chart boxes at the bottom of each chart represent the groups of beneficiaries used in calculating means or percentages for presentation in the following table.

The first analytic table reports findings for DoD as a whole; by geographic location (in U.S. catchment areas, out of U.S. catchment areas, and overseas); and by region for the

population living inside U.S. catchment areas. The second table reports findings by gender and beneficiary type for beneficiaries living inside catchment areas. The original six beneficiary groups were combined into four types (active duty personnel; active duty family members; retirees, survivors and their family members under age 65; retirees, survivors and their family members age 65 or over). The next presentation of results shows findings by source of care within the four beneficiary types. The three *regular source of care* categories are "military," "civilian," "none/don't know." The remaining tables report findings within each region, for each combination of beneficiary type and source of care just for the population living inside U.S. catchment areas.

### ***Approach to Analysis of Health Status Data***

The analysis of health status data presented below employs the following general rules:

- The discussion stresses broad patterns that emerge by comparing table columns and rows. Specific values from table entries are cited only to illustrate examples of a pattern or to give an idea of the magnitude of differences among subgroups.
- For related groups of tables, the discussion appears before that group of tables. This paper discusses the beneficiaries' perceived health status using the PCS and the MCS from the SF-12, and their self-reported change in health status from one year age.
- The discussion of results for individual health care regions is by exception indicating how a region varies meaningfully from the overall findings and in what ways a particular region is different.
- Differences between columns or rows of a single table, or between two different tables are discussed when they are either numerically large, (e.g., greater than 0.5 or one half of a change in health status scale point), or if these differences form a pattern in a row which is consistent across all columns of a table.
- The types of tables created are:
  - ♦ based upon all beneficiaries in U.S. catchment areas who report using either a military regular source of care or who report using a civilian regular source of care or who report using none/don't know;
  - ♦ concerned with geographic locations (total DoD, those in U.S. catchment areas, those in U.S. noncatchment areas, overseas, and U.S. catchment areas of specific health care regions and Alaska); and
  - ♦ beneficiaries in U.S. catchment areas who are either men or women; who are active duty members; family members of active duty personnel; retirees, survivors and their family members under age 65; or retirees, survivors and their family members age 65 or over.

## Results of Analysis

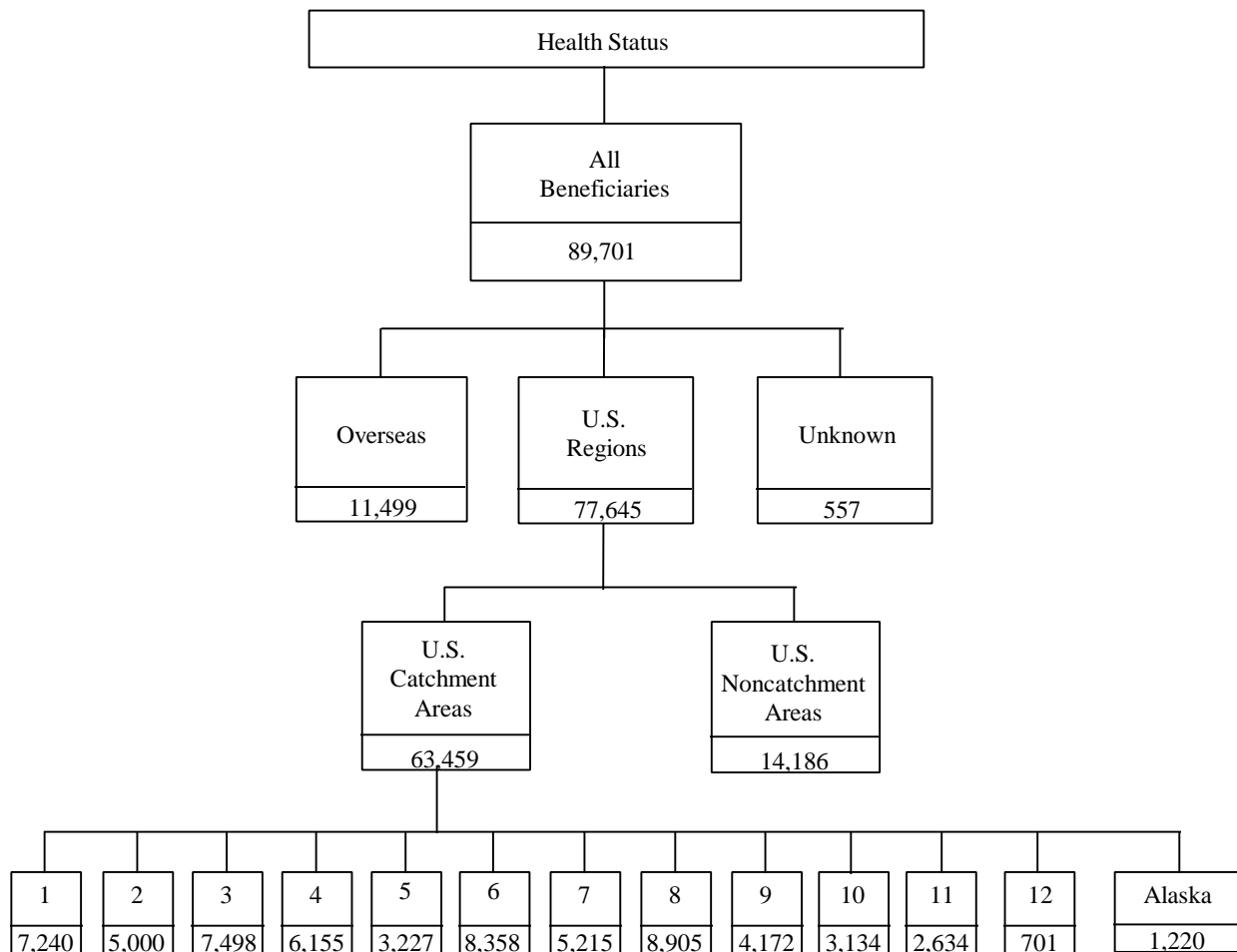


Figure 1. Health status

### ***Beneficiaries' Health Status***

Table 1a presents average health status scale scores organized by geographic locations (total DoD, those in U.S. catchment areas, those in U.S. noncatchment areas, overseas, and U.S. catchment areas of specific health care regions and Alaska). Table 2a presents data on health status for males, females and the four beneficiary groups shown in Figure 2. Within the four beneficiary types, are there health status scale score differences depending on regular source of medical care - military regular source of care or civilian regular source of care or none/don't know? Table 3a presents results bearing on this question.



### ***Beneficiaries' Health Status by Location***

***Change in Health Status.*** Table 1a shows that beneficiaries living in U.S. catchment areas, U.S. noncatchment areas and overseas each report that compared to one year ago, their health now, is about the same. This pattern also holds across all regions.

***SF-12 PCS.*** Beneficiaries living overseas report an SF-12 PCS value that is statistically significantly higher than the values reported by those beneficiaries living in U.S. catchment areas and U.S. noncatchment areas (Table 1a). The pattern tends to repeat in the subscales: in each subscale, beneficiaries living overseas tend to have higher values than beneficiaries living in the U.S. While there is no clear distinction across regions, in each region, the relationship between the SF-12 PCS and the various subscales is similar to the relationship for beneficiaries living in all U.S. catchment areas.

***SF-12 MCS.*** Unlike the SF-12 PCS, the SF-12 MCS for beneficiaries living overseas is statistically significantly lower from either those living in U.S. catchment areas or those living in U.S. noncatchment areas. Across the regions, the range in the SF-12 MCS values is from 50.5 to 51.9 with no obvious pattern (see Table 1a).

### ***Beneficiaries' Health Status by Gender and Beneficiary Group***

***Change in Health Status.*** Table 2a presents health status by gender and beneficiary group. Men and women each report that compared to one year ago, their health now, is about the same. Each beneficiary group reports that compared to one year ago, their health now, is about the same. The value for retirees and family members aged 65 and older is less than 50 percent, which indicates that a slightly higher proportion of this group reported that their health is worse now than one year ago.

***SF-12 PCS.*** The SF-12 PCS is statistically significantly lower for women than for men, and the subscales tend to repeat this (Table 2a). For women, each subscale value is statistically significantly lower than the same subscale value for men. The range of the SF-12 PCS is from 52.8, for active duty personnel to 40.9, for retirees and family members aged 65 and older. This decline is mirrored in three of the "physical" subscales: "physical functioning," "role - physical," and "bodily pain." For the "physical functioning" subscale, the range is from 92.4 to 56.4; for the "role-physical" subscale, the range is from 85.7 to 50.4 and for the "bodily pain" subscale, the range is from 86.4 to 71.5.

***SF-12 MCS.*** The SF-12 MCS for women is also statistically significantly lower than the value for men (50.5 compared to 51.5). While retirees and family members aged 65 and older have the lowest SF-12 PCS values, they have the highest SF-12 MCS and it is statistically significantly above the value for active duty personnel. Unlike the SF-12 PCS, Table 2a provides no clear pattern in the subscales across the beneficiary groups.

### ***Beneficiaries' Health Status by Beneficiary Group and Regular Source of Care.***

***Change in Health Status.*** Table 3a shows that each beneficiary group, regardless of the regular source of care, reports that compared to one year ago, their health now, is about the same. There is a tendency for those with no regular source of care to report a very slightly higher health status compared with those with military or civilian regular source of care.

***SF-12 PCS.*** For active duty personnel, the SF-12 PCS values are statistically significantly different for beneficiaries with a military regular source of care (52.7) and beneficiaries with a civilian regular source of care (50.7) (see Table 3a). On the other hand, neither active duty family members nor retirees and family members aged 65 and older have a statistically significant difference between those beneficiaries with a military regular source of care and those with a civilian regular source of care. Beneficiaries who reported their regular source of care as "None/Don't Know" have the highest SF-12 PCS score for each beneficiary group (53.6; 53.0; 50.4; and 43.3).

***SF-12 MCS.*** The SF-12 MCS values reveal no patterns in values for regular source of care across the four beneficiary groups (Table 3a). There are no unusual extremes in the reported values, which range from 48.7 to 53.2.

Table 1a [Health Status - Average Health Status Values and Standard Error By Location](#)

Table 1b [Health Status - Unweighted and Effective Sample Sizes By Location](#)

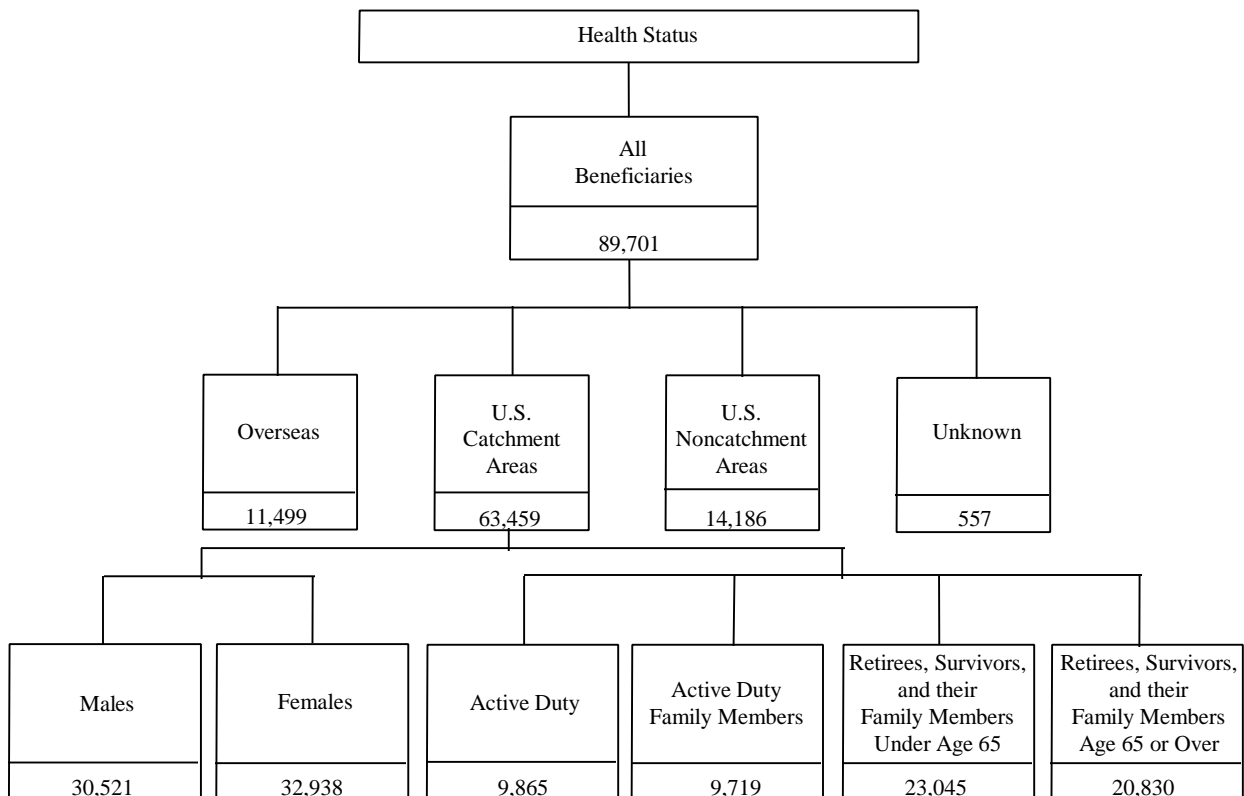


Figure 2. Health status - Beneficiaries in U.S. catchment areas by gender and beneficiary type

Table 2a [Health Status - Beneficiaries in U.S. Catchment Areas - Average Health Status Values and Standard Error By Gender and Beneficiary Type](#)

Table 2b [Health Status - Beneficiaries in U.S. Catchment Areas - Unweighted and Effective Sample Sizes By Gender and Beneficiary Type](#)

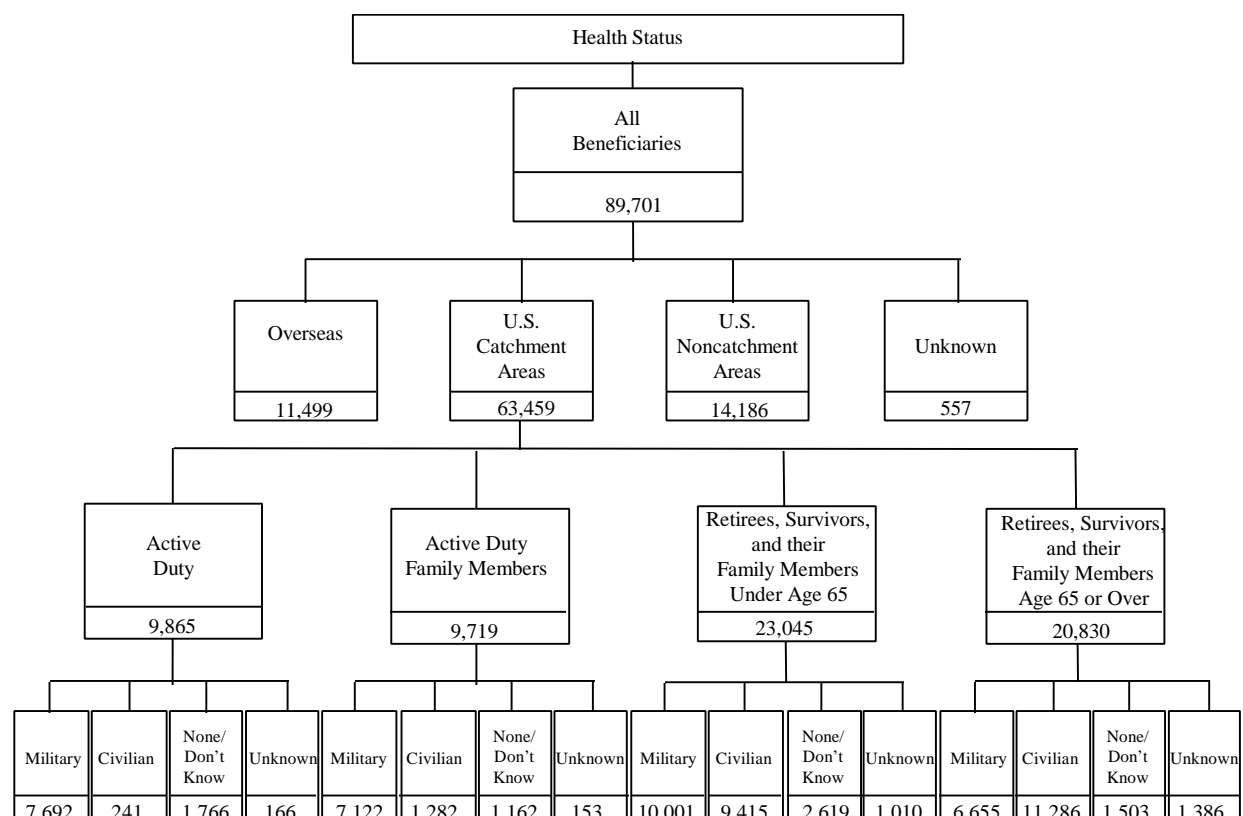


Figure 3. Health status - Beneficiaries in U.S. catchment areas by beneficiary type and regular source of care

Table 3a [Health Status - Beneficiaries in U.S. Catchment Areas - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 3b [Health Status - Beneficiaries in U.S. Catchment Areas - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

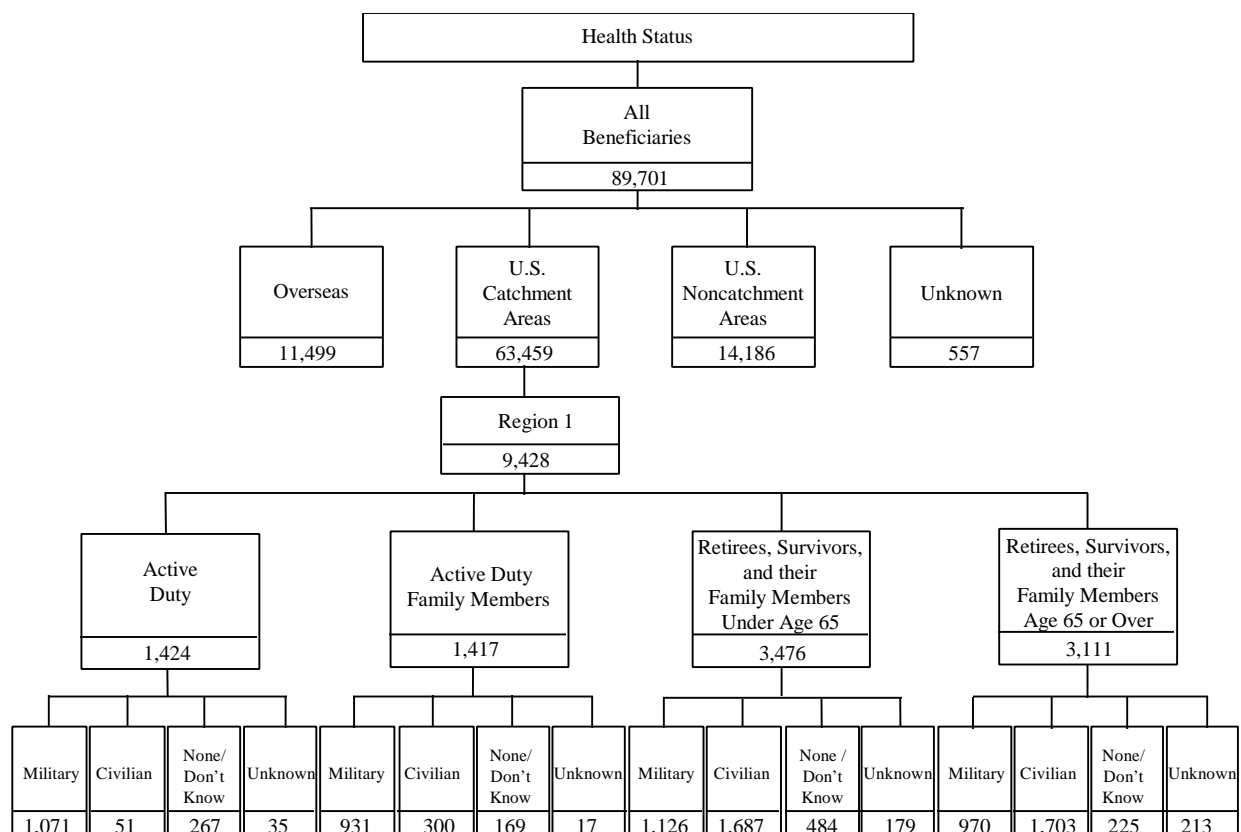


Figure 4. Health status - Beneficiaries in catchment areas in Region 1, Northeast, by beneficiary type and regular source of care

### ***Beneficiaries' Health Status Within Regions***

Within each region and Alaska, are there health status scale score differences among the four beneficiary types or among beneficiaries with differing sources of medical care? Tables 4a through 16a present, for each region, results bearing on this question.

***Change in Health Status.*** In each region, each beneficiary group, regardless of the regular source of care, reports that compared to one year ago, their health now, is about the same. There is no obvious pattern across beneficiary groups or by regular source of care.

***SF-12 PCS.*** All regions except 6 (Southwest), 11 (Northwest), 12 (Hawaii Pacific) and Alaska display the pattern that beneficiaries with no regular source of care (e.g. "None/Don't Know") have the highest value for the SF-12 PCS. In regions 6 (Southwest), 11 (Northwest), 12 (Hawaii Pacific) and Alaska, the highest values for the SF-12 PCS is for beneficiaries with a civilian regular source of care, generally for beneficiaries who are active duty personnel.

***SF-12 MCS.*** Beneficiaries with a civilian regular source of care living in regions 7 (Desert States) and 12 (Hawaii Pacific) report a value for the SF-12 MCS that is statistically significantly higher than the SF-12 MCS reported for those beneficiaries with either a military regular source of care or those who reported "None/Don't Know" for their regular source of care.

In no other region, is there a statistically significant difference in the SF-12 MCS among the sources of care for any beneficiary group.

Table 4a [Health Status - Beneficiaries in Catchment Areas in Region 1, Northeast - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 4b [Health Status - Beneficiaries in Catchment Areas in Region 1, Northeast - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

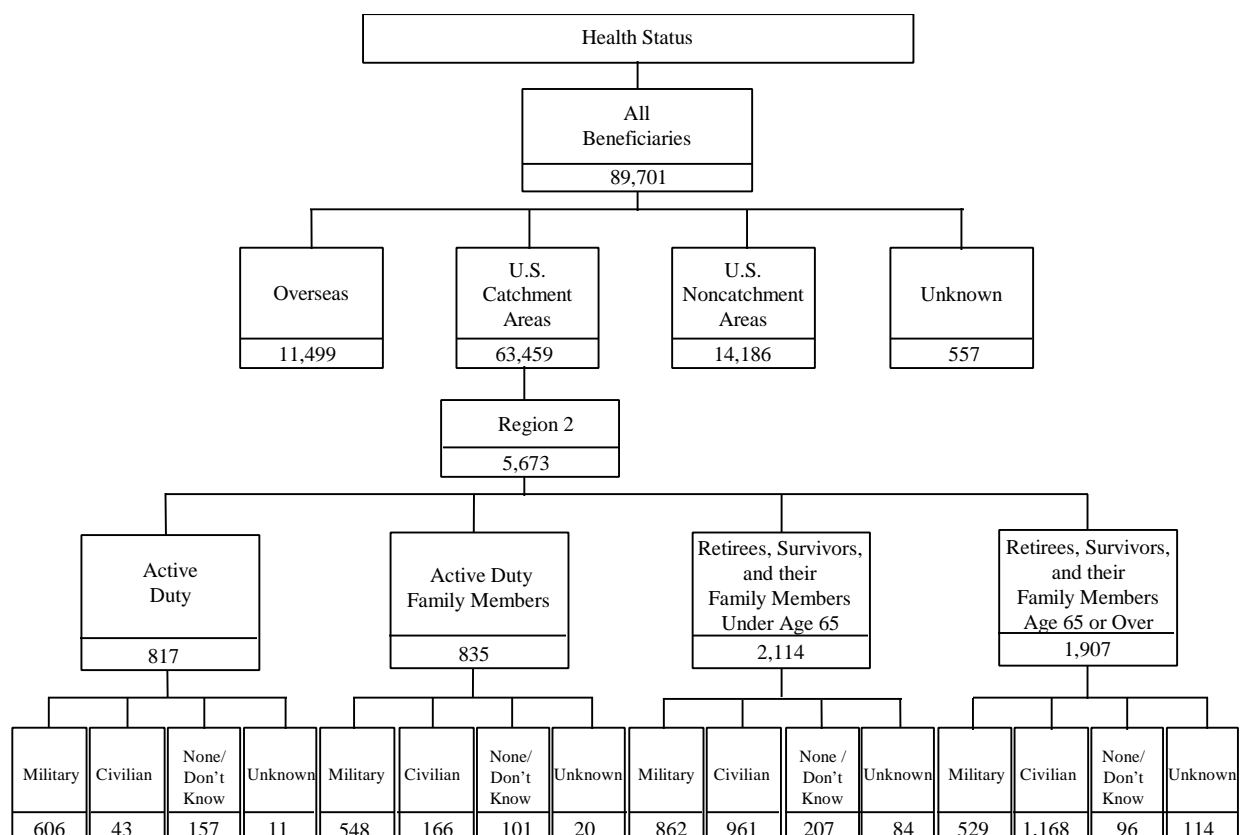


Figure 5. Health status - Beneficiaries in catchment areas in Region 2, Mid-Atlantic, by beneficiary type and regular source of care

Table 5a [Health Status - Beneficiaries in Catchment Areas in Region 2, Mid-Atlantic - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 5b [Health Status - Beneficiaries in Catchment Areas in Region 2, Mid-Atlantic - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

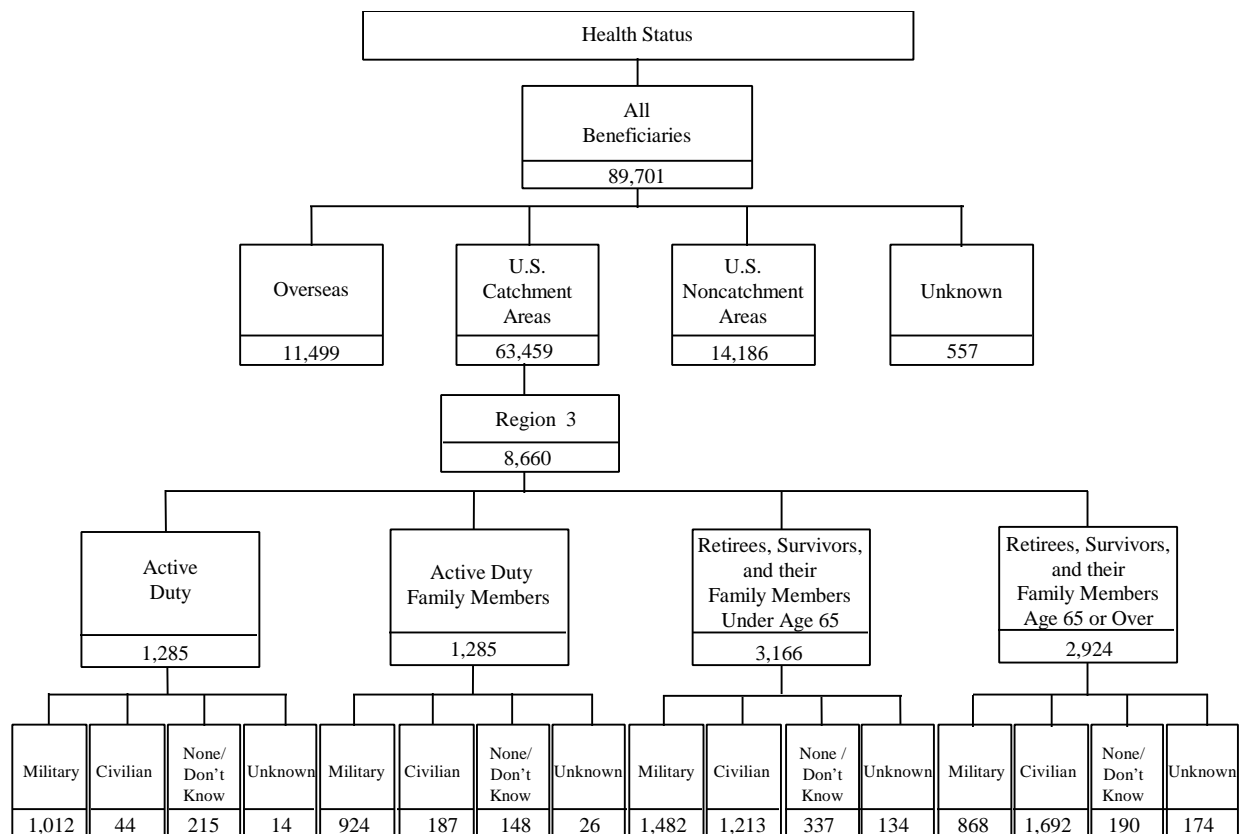


Figure 6. Health status - Beneficiaries in catchment areas in Region 3, Southeast, by beneficiary type and regular source of care

Table 6a [Health Status - Beneficiaries in Catchment Areas in Region 3, Southeast - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 6b [Health Status - Beneficiaries in Catchment Areas in Region 3, Southeast - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

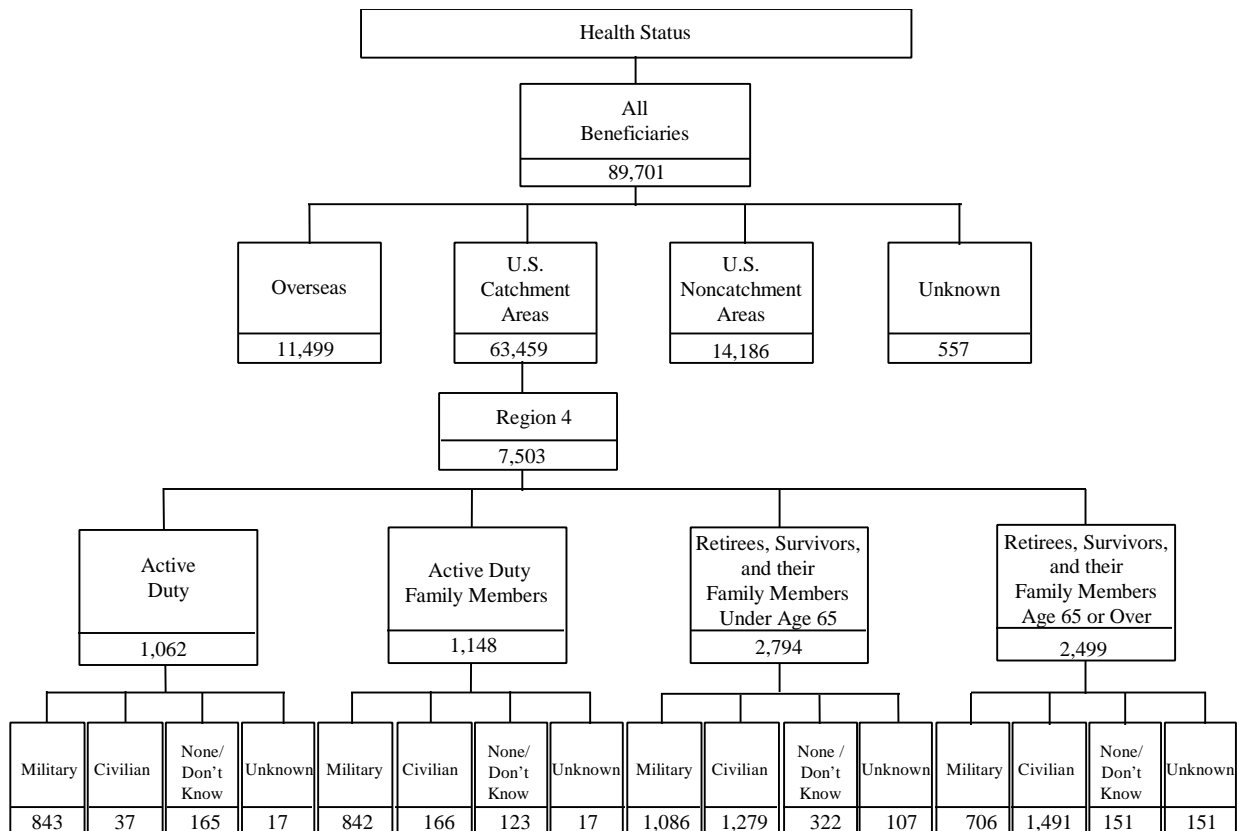


Figure 7. Health status - Beneficiaries in catchment areas in Region 4, Gulf South, by beneficiary type and regular source of care

Table 7a [Health Status - Beneficiaries in Catchment Areas in Region 4, Gulf South - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 7b [Health Status - Beneficiaries in Catchment Areas in Region 4, Gulf South - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

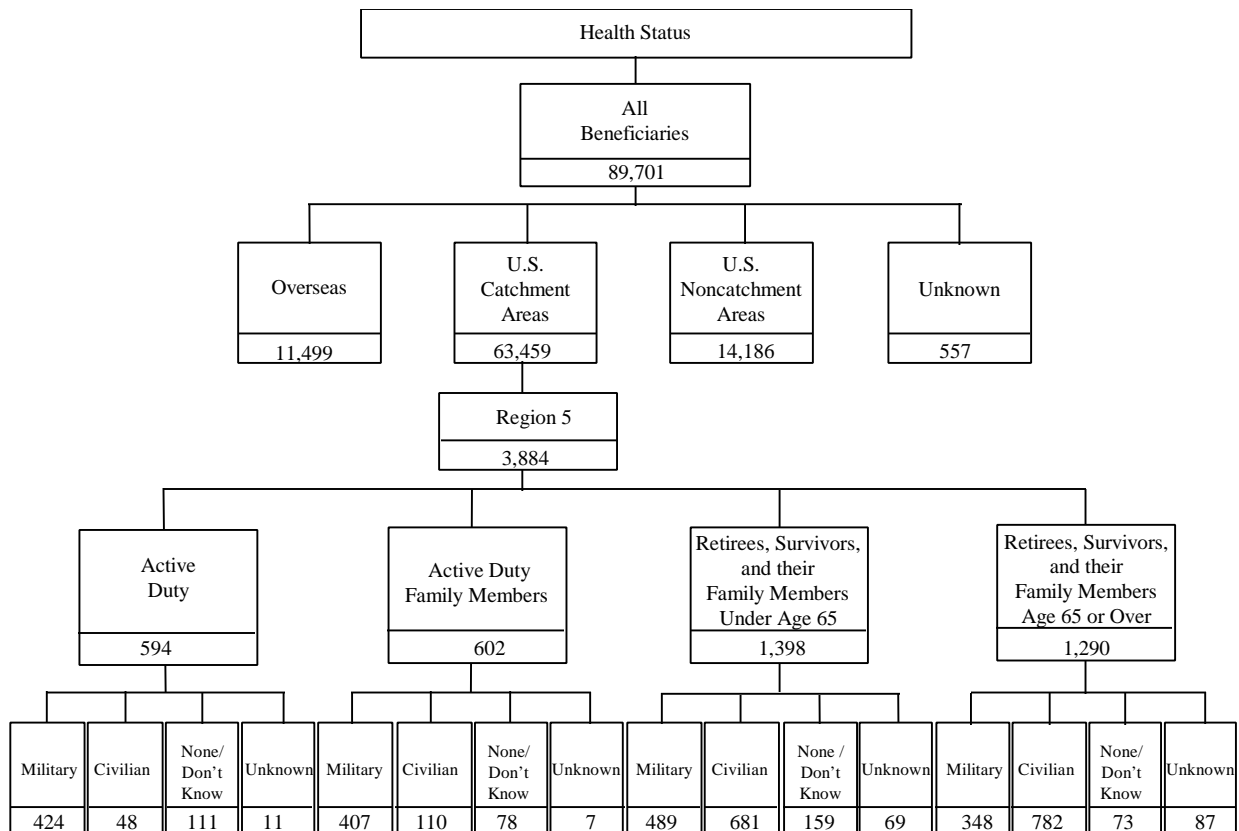


Figure 8. Health status - Beneficiaries in catchment areas in Region 5, Heartland, by beneficiary type and regular source of care

Table 8a [Health Status - Beneficiaries in Catchment Areas in Region 5, Heartland - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 8b [Health Status - Beneficiaries in Catchment Areas in Region 5, Heartland - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)



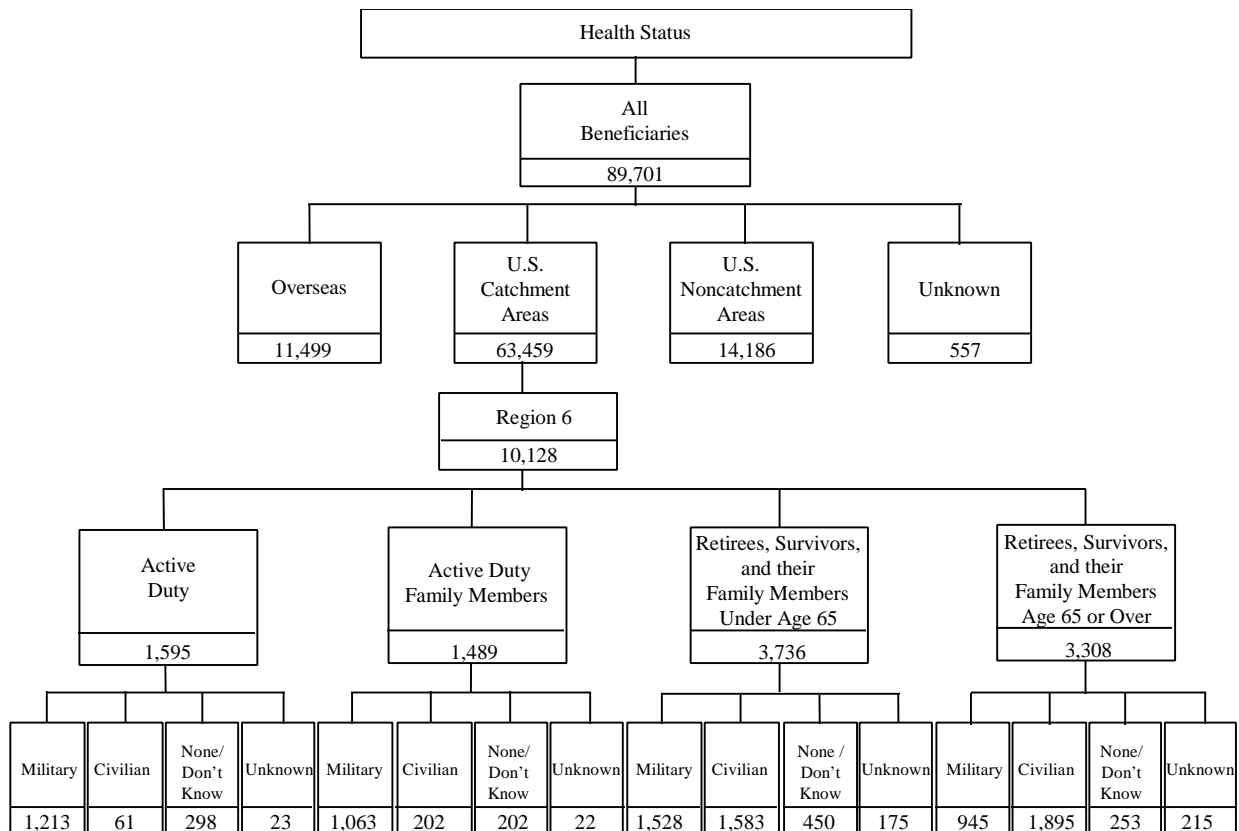


Figure 9. Health status - Beneficiaries in catchment areas in Region 6, Southwest, by beneficiary type and regular source of care

Table 9a [Health Status - Beneficiaries in Catchment Areas in Region 6, Southwest - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 9b [Health Status - Beneficiaries in Catchment Areas in Region 6, Southwest - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

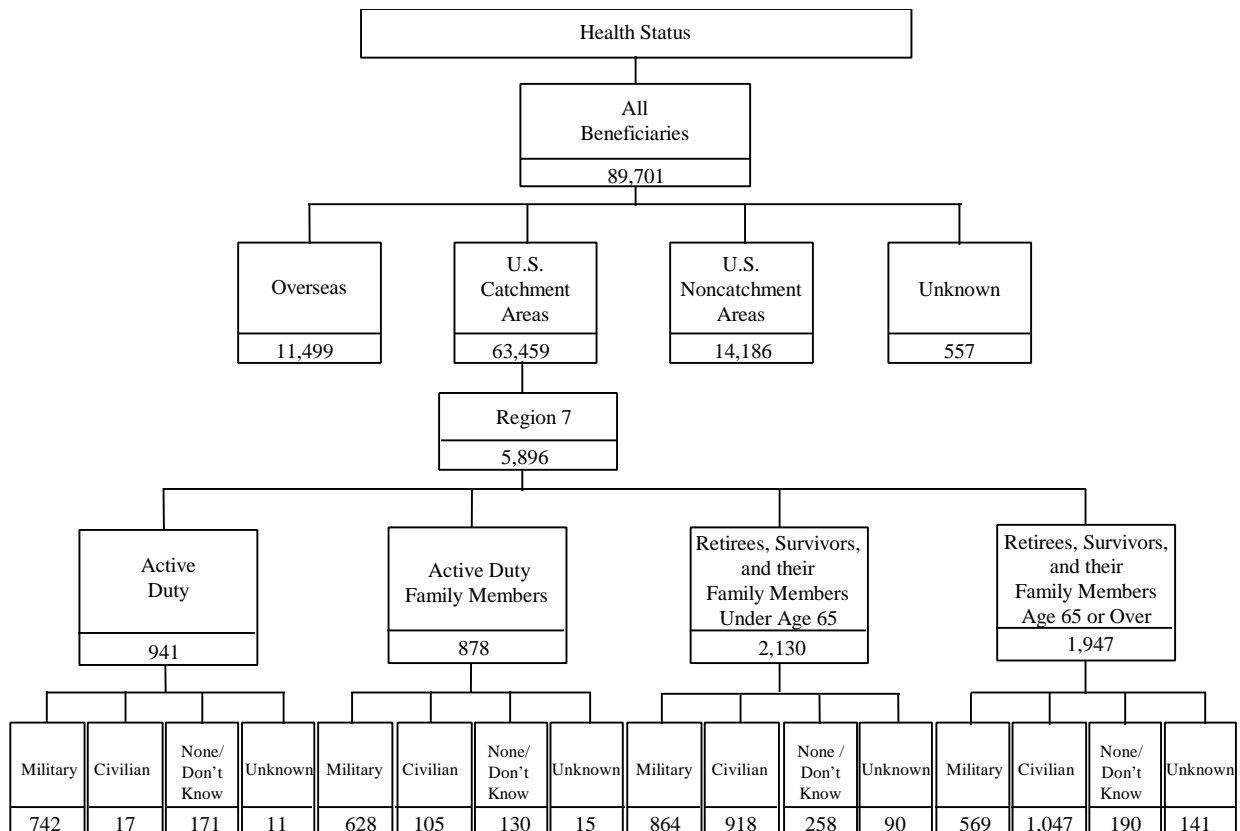


Figure 10. Health status - Beneficiaries in catchment areas in Region 7, Desert States, by beneficiary type and regular source of care

Table 10a [Health Status - Beneficiaries in Catchment Areas in Region 7, Desert States - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 10b [Health Status - Beneficiaries in Catchment Areas in Region 7, Desert States - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

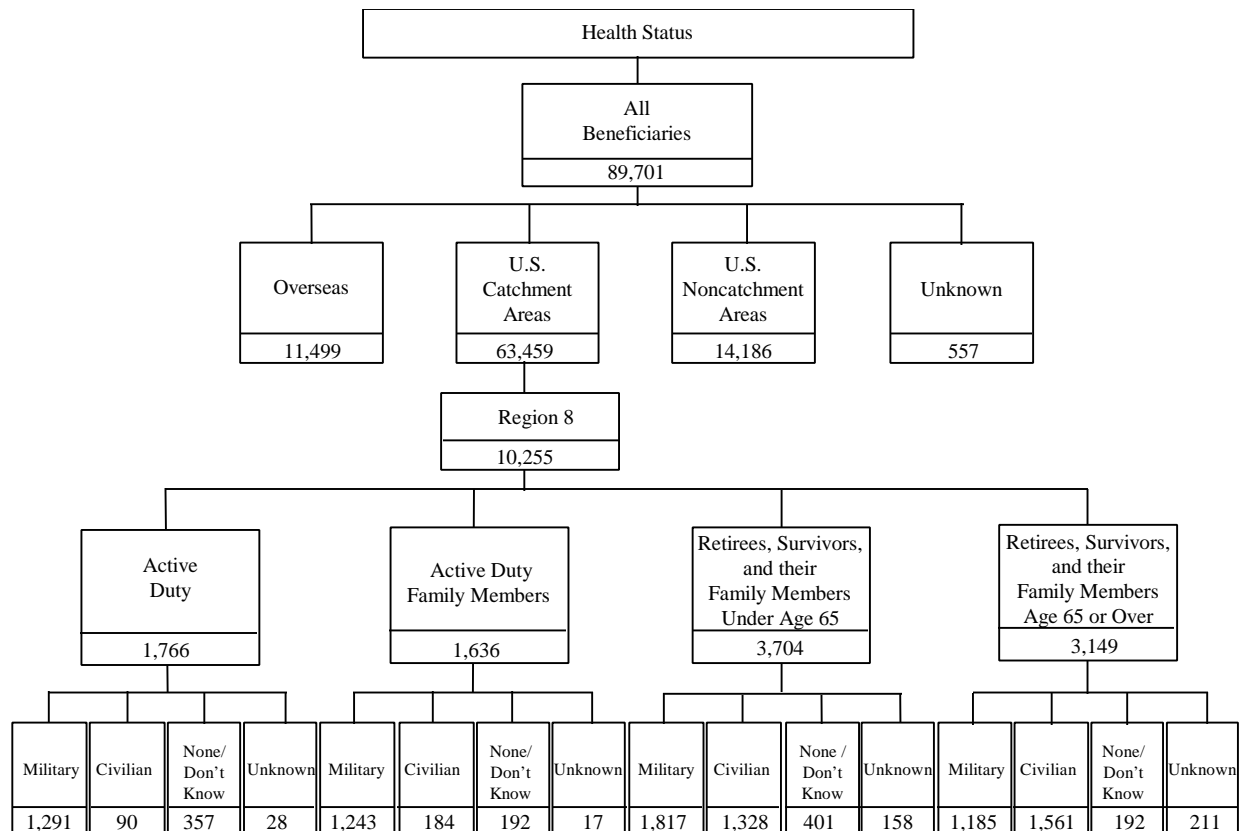


Figure 11. Health status - Beneficiaries in catchment areas in Region 8, North Central, by beneficiary type and regular source of care

Table 11a [Health Status - Beneficiaries in Catchment Areas in Region 8, North Central - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 11b [Health Status - Beneficiaries in Catchment Areas in Region 8, North Central - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

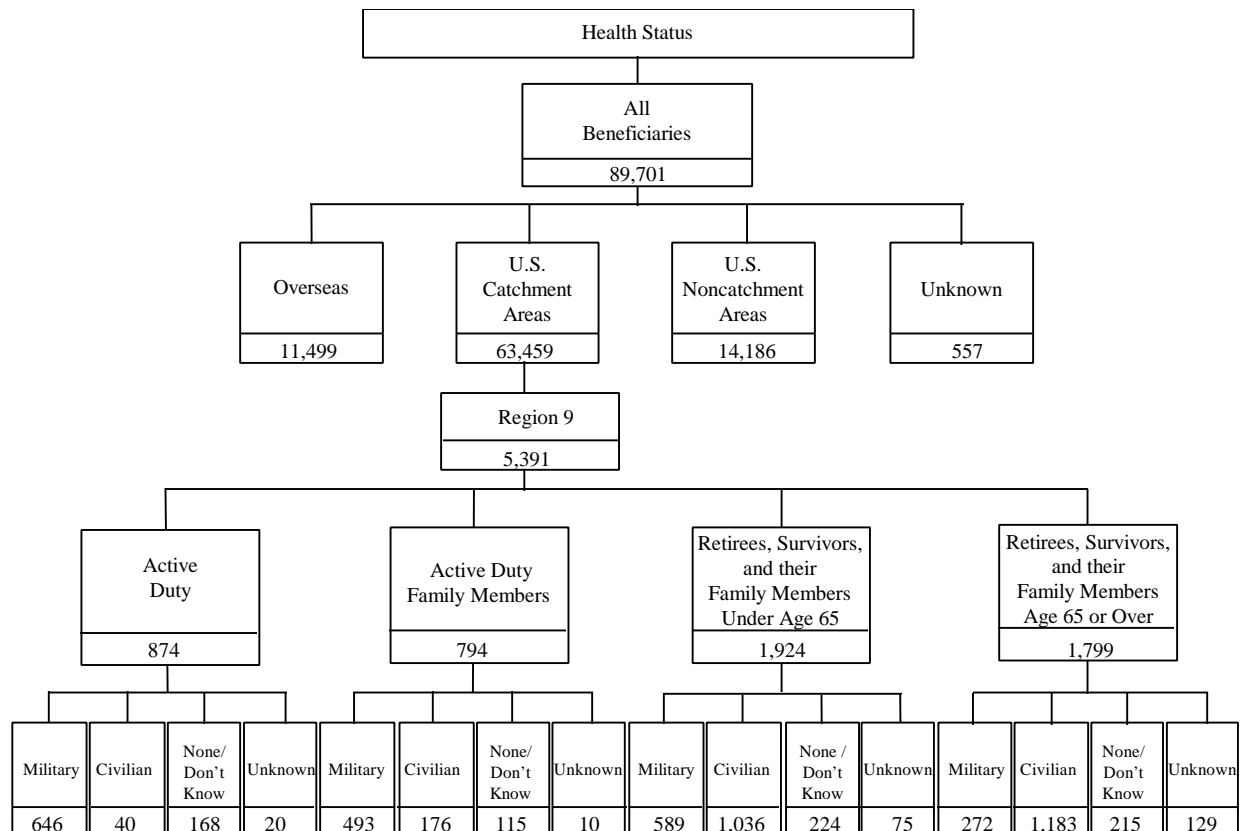


Figure 12. Health status - Beneficiaries in catchment areas in Region 9, Southern California, by beneficiary type and regular source of care

Table 12a [Health Status - Beneficiaries in Catchment Areas in Region 9, Southern California - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 12b [Health Status - Beneficiaries in Catchment Areas in Region 9, Southern California - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

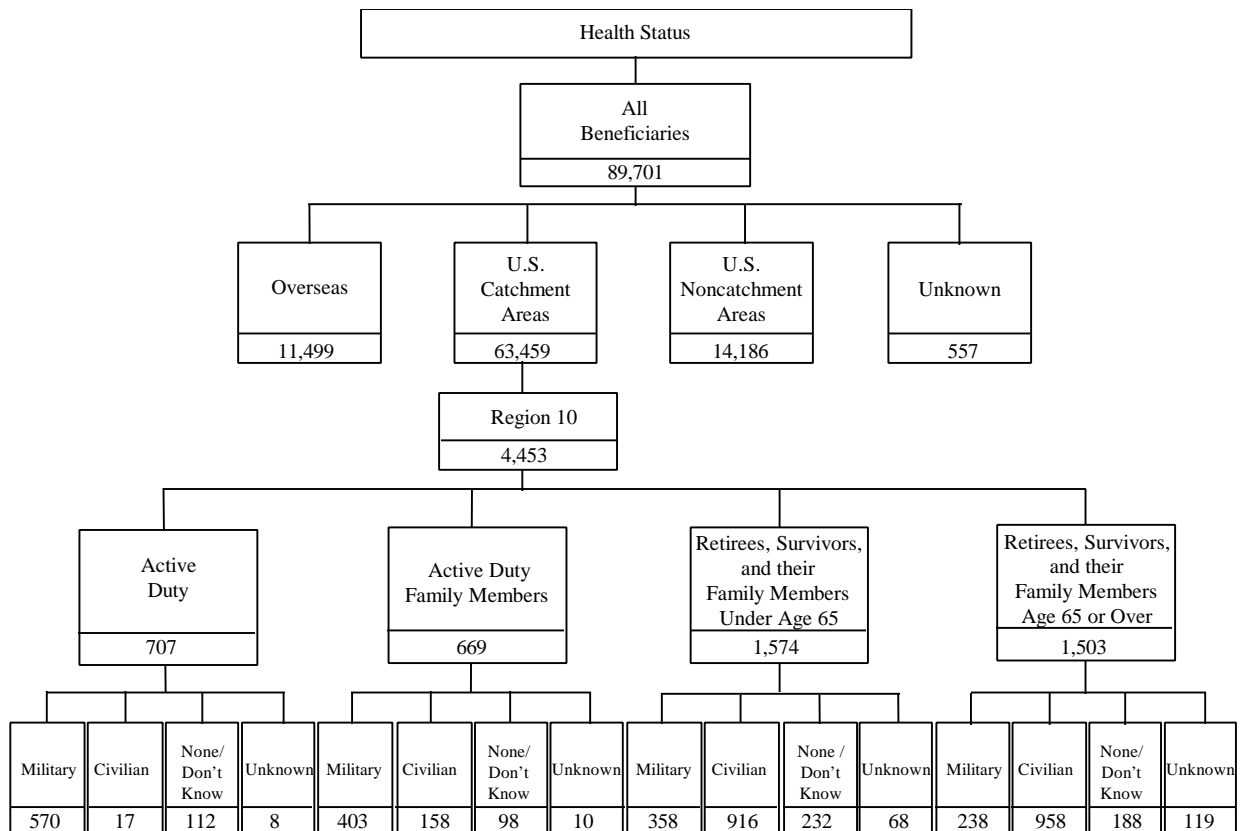


Figure 13. Health status - Beneficiaries in catchment areas in Region 10, Golden Gate, by beneficiary type and regular source of care

Table 13a [Health Status - Beneficiaries in Catchment Areas in Region 10, Golden Gate - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 13b [Health Status - Beneficiaries in Catchment Areas in Region 10, Golden Gate - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

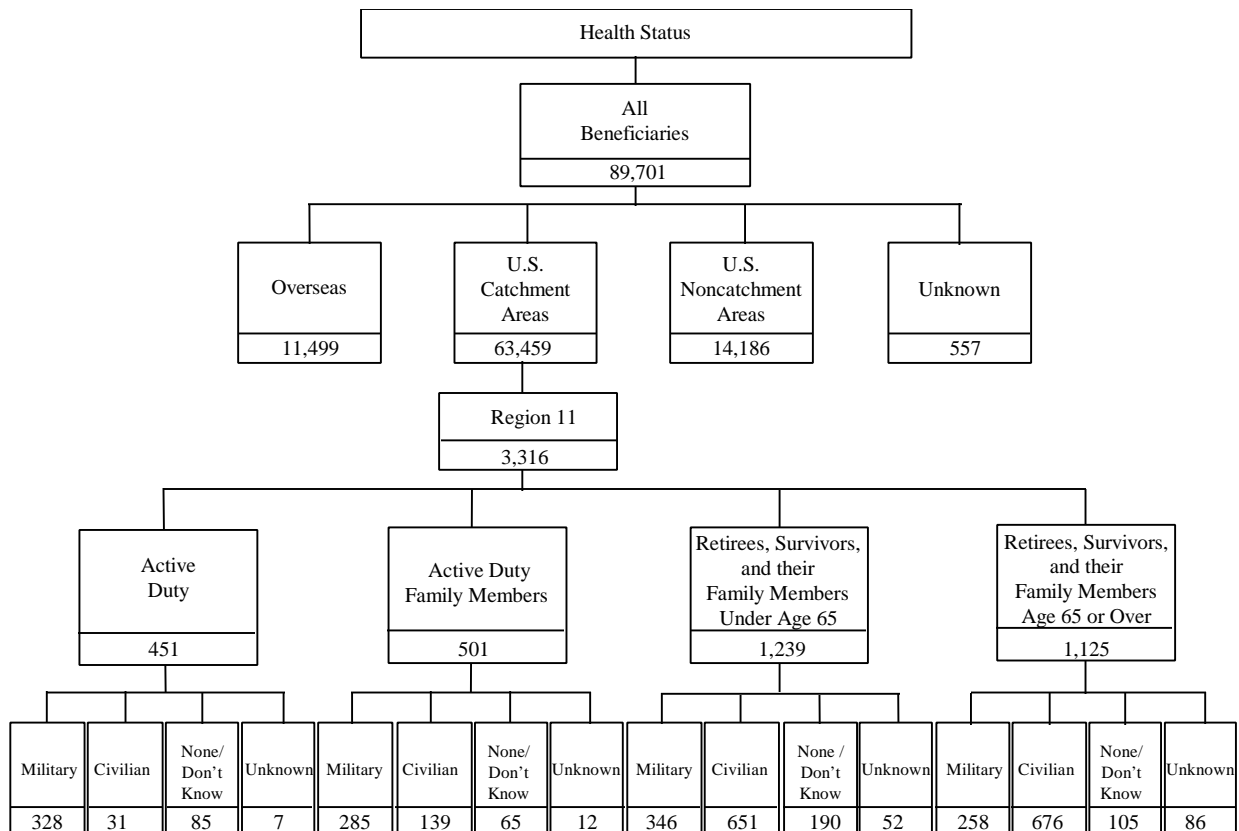


Figure 14. Health status - Beneficiaries in catchment areas in Region 11, Northwest, by beneficiary type and regular source of care

Table 14a [Health Status - Beneficiaries in Catchment Areas in Region 11, Northwest - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 14b [Health Status - Beneficiaries in Catchment Areas in Region 11, Northwest - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

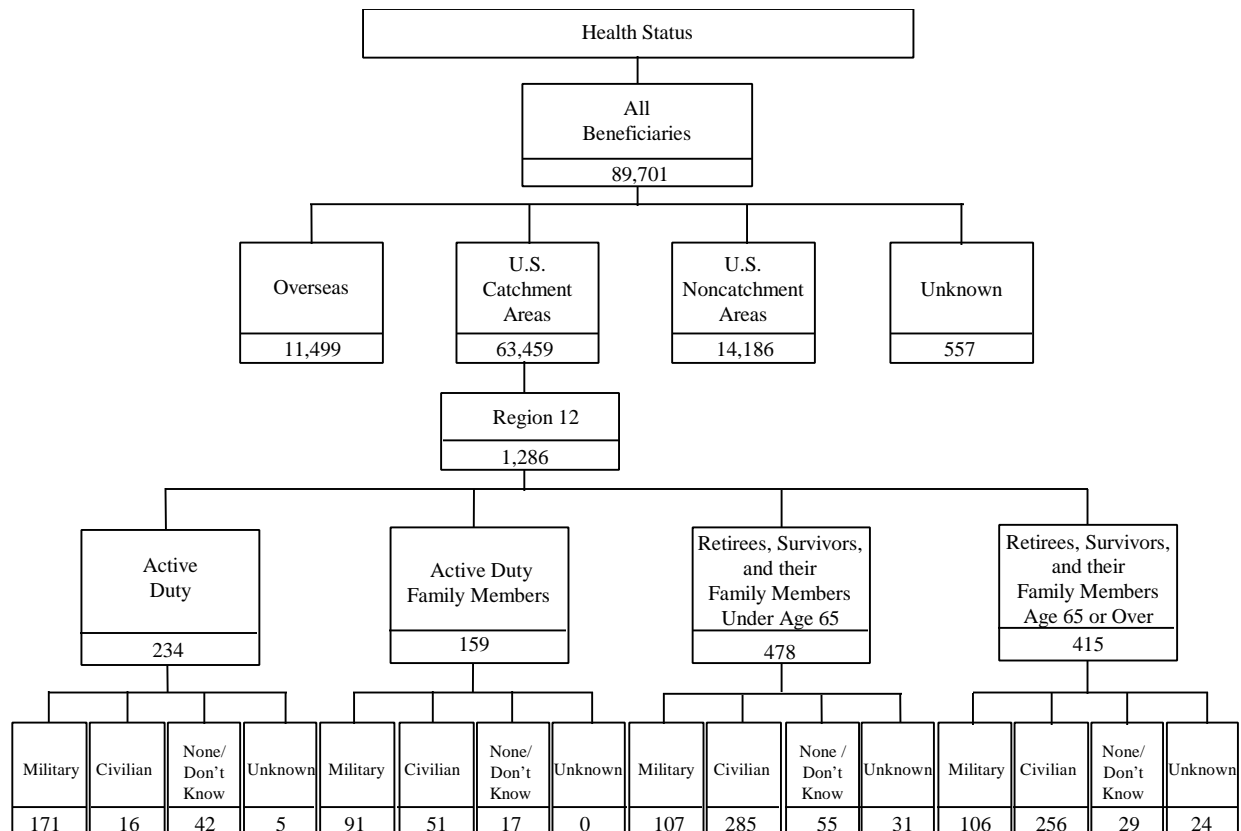


Figure 15. Health status - Beneficiaries in catchment areas in Region 12, Hawaii Pacific, by beneficiary type and regular source of care

Table 15a [Health Status - Beneficiaries in Catchment Areas in Region 12, Hawaii Pacific - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 15b [Health Status - Beneficiaries in Catchment Areas in Region 12, Hawaii Pacific - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

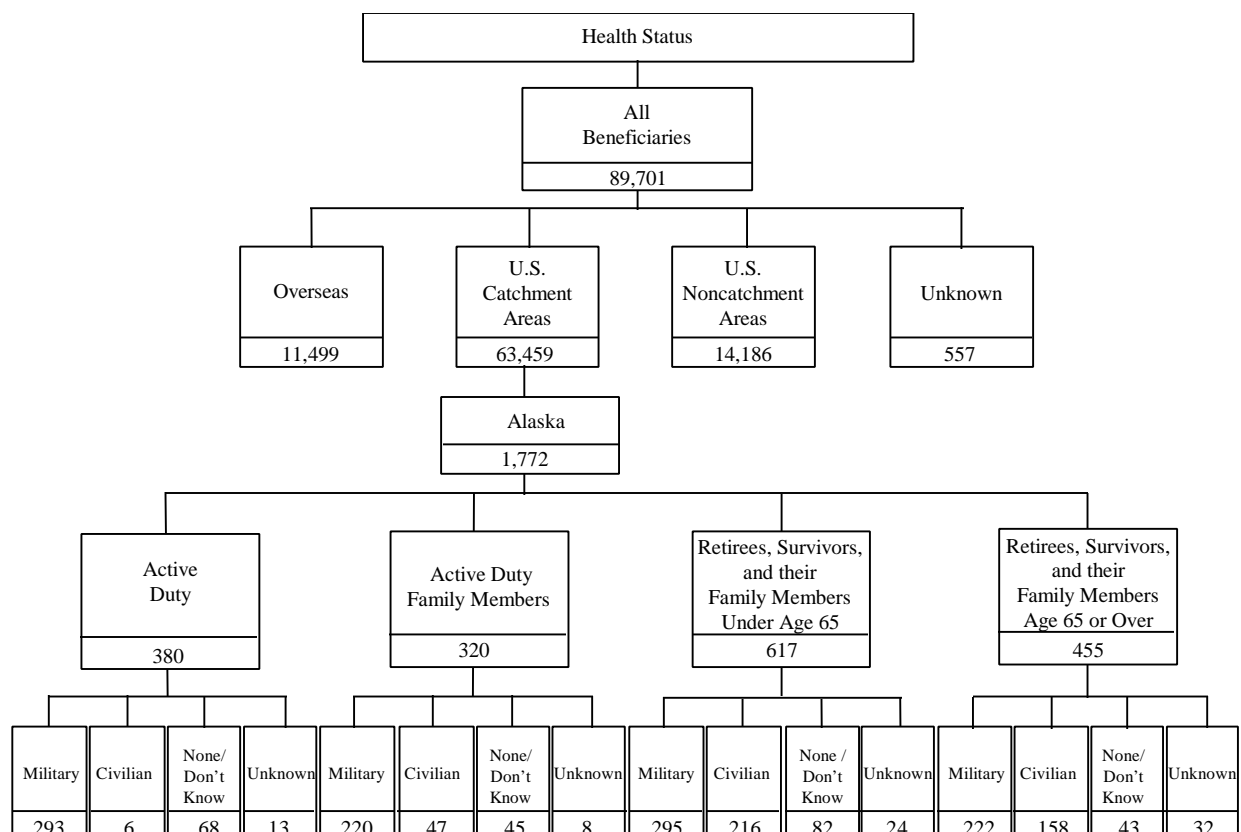


Figure 16. Health status - Beneficiaries in catchment areas in Alaska by beneficiary type and regular source of care

Table 16a [Health Status - Beneficiaries in Catchment Areas in Alaska - Average Health Status Values and Standard Error By Beneficiary Type and Regular Source of Care](#)

Table 16b [Health Status - Beneficiaries in Catchment Areas in Alaska - Unweighted and Effective Sample Sizes By Beneficiary Type and Regular Source of Care](#)

## REFERENCES

Brundage, T., Chu, A., and Davis, B. (1997). *1996 Health Care Survey of DoD Beneficiaries Technical Manual - Form A* (DMDC Study Report 96-004). Arlington, VA: Defense Manpower Data Center.

Ware, J. E., Kosinski, M., and Keller, S. D., (1995). *SF-12: How to Score the SF-12 Physical & Mental Summary Scales*, Second Edition. Boston, MA: The Health Institute, New England Medical Center.